Rita Temmerman. *Towards New Ways of Terminology Description: The Sociocognitive Approach.* 2000, xv + 258 pp. ISBN 90 272 2326 2 (Eur.), 1 55619 772 1 (US) (Hb.). Amsterdam/Philadelphia: John Benjamins. Price: €75, US$75.

This book appeared as Volume 3 in the Series Terminology and Lexicography Research and Practice edited by Helmi Sonneveld and Sue-Ellen Wright. The author, Rita Temmerman, presently working at the Erasmus Hogeschool, Brussels and specialising in problems of terminology in various domains of the life sciences, presents a polemical, stimulating and innovative monograph which continues and deepens her previous research work. Her doctoral dissertation (Louvain 1998) focused on *Terminology Beyond Standardisation: Language and Categorisation in the Life Sciences.* The aim of the book under review, *Towards New Ways of Terminology Description: The Sociocognitive Approach,* is to elaborate a new theory, method and application of terminology research which seeks to overcome the obvious limitations of traditional terminology as chiefly represented by the Vienna School (Eugen Wüster, Helmut Felber, Infoterm and associated institutions).

In Temmerman's view, traditional terminology (for which she uses the metalingual expression *Terminology* with a capital letter) has actually impeded the creation, definition and placement of terms in a conceptual system. This argument is repeated in various contexts and nearly becomes a guiding motif throughout the book. In Chapter 1, entitled "From Principles of Standardisation to a Scientific Study of Terminology" she discusses the main principles, and also the shortcomings, of Terminology:

(1) the onomasiological perspective
(which implies how postulated concepts derived from the outside world are designated by terms)

(2) the proposition that concepts are clear-cut
(so that fuzzy areas, and overlaps should be excluded from the terminological system which has a well-designed structure of hyperonyms and hyponyms)

(3) the allocation of terminological definitions to concepts
(with the distinction between the intensional definition, the extensional definition, and the part-whole definition; preference, however, is given to the meaningful intensional definition of a concept)

(4) the claim of univocity
(this implies that each concept should be designated by only one term and one term should refer to one concept only, which in fact excludes cases of synonymy and polysemy)

(5) the prevalence of synchrony
(the evolution of terms and word formation processes are not the concern of traditional Terminology; the shaping of new terms in technical texts, and specialist discourse in time and space are beyond its scope of interest).

From this general state of the art the author draws the conclusion that "the interest in terminological research was hindered by the interest of standardisation" (p. 15), that univocity of terms is an unrealistic claim, but rather polysemy and synonymy are typical phenomena. She blames traditional Terminology for "objectivism which is the basis of Western thinking" in that this doctrine (or "dogma") describes only isolated objects of the material world and ignores "the human capacity *to understand* and *to imagine*" phenomena, their meaning, function and interrelation (p. 16). Temmerman's critical assessment is unmitigated: "Wüster and his followers turned Terminology into a number of dogmatic principles for terminology description with language engineering, planning and standardisation, as a consequence of product standardisation, as the underlying socio-economic motivations" (p. 17). In her view, the ISO documents in Austria are the logical consequence of this pragmatic handling of terminology.

In the course of this chapter the author describes and assesses "Different schools of Terminology" which have a scientific foundation. Thus, European traditional terminologists believe that the terminology model starts with concepts whose meaning should be clearly delineated — an idea which is opposed by Canadian terminologists. Moreover, traditional terminologists are convinced that terms designate logically stipulated concepts and have no connotations, but can be placed in a system which is structured by "logical and ontological relationships" (p. 20). In contrast to Saussurian structuralist semantics, western terminologists hold the opinion that terms can be studied in separation from text, discourse, social and cognitive processes relating to the growth and restructuring (even a paradigm shift) of a scientific or technological domain and its special language. Here again, Canadian and Scandinavian terminologists hold different opinions (R. Kocourek, G. Rondeau; H. Picht, Ch. Laurén). And Temmerman quotes more international researchers who have levelled criticism at the Viennese School, such as Juan C. Sager (UMIST, Great Britain, 1986), Peter Weissenhofer (1995, Vienna); Britta Zawada and Piet Swanepoel (1994, South Africa), M. Teresa Cabré (1995), Ingrid Meyer (1992, Canada), the Canadian representatives of the new approach of socioterminology (F. Gaudin 1993, J.-C. Boulanger 1995), and the Japanese researcher Kyo Kageura (1995). These critical authors and their objections to the five principles of traditional (Viennese) Terminology are compared in an instructive synopsis (p. 35f.).

In Chapter 2 the author sets out to develop "New Propositions for Terminology" and to furnish alternative arguments for "the four key issues conceptualisation/categorisation, naming or lexicalisation, metaphorical models, and

the diachronic study of categories" (p. 39). She discusses the interplay of language use, the specialist's creative thinking and understanding of domain-specific phenomena, and the dissemination of information in texts where new terms may spring up, but are perfectly understood and become part of a terminological system.

The author draws the necessary empirical data for her corpus-driven alternative approach from a field with which she is deeply familiar: the life sciences. This complex area of research encompasses several domains. These include biology, genetics, molecular genetics, genetic engineering, biochemistry, recombinant DNA technology, biotechnology, and medicine (p. 234). As the author elaborates in a later sub-chapter, biotechnology is an umbrella category.

In Chapter 3 the author demonstrates her new methodology, "From Traditional Definitions of Concepts to Templates of Units of Understanding". At the outset, she makes an important statement: "Categories are all the units of understanding which are impossible to describe according to the principles of traditional Terminology. There is prototype structure, both within and between categories (intracategorially and intercategorially)" (p. 73). By choosing prototypical examples from the life sciences she shows that definitions of the entity *intron,* the activity *blotting* and the collective category *biotechnology* do not originate as stipulations from outside for isolated concepts, but rather develop from descriptions in the environment of a specialist text. As units of understanding they have a prototype structure, may be subject to variation and can be explained as categories of understanding based on cognitive models. For the definition the history of a unit of understanding should also be taken into consideration, for which *biotechnology* may serve as a suitable example. On the whole, this chapter proves the author's competent knowledge as a subject specialist in intricate matters which cannot be elucidated by the linguist alone.

Chapter 4 discusses crucial problems of "Univocity And Polysemy". The author formulates two propositions (p. 132):

(1) When a new phenomenon is discovered which can be clearly delineated and defined there is at first a natural development towards univocity (…). The search for a better and more profound understanding of the unit of understanding and the possible meaning extension mechanisms of language (like metaphorising) are likely to lead to polysemisation of the term which was initially assigned to the unit of understanding.

(2) Univocity as the ideal for unambiguous and therefore efficient reasoning and communication is unrealistic for prototypically structured categories (…). This has at least two aspects to it. Firstly, polysemy is functional in specialised language. It is the consequence of a search for more and more profound knowledge and understanding. (…) Secondly, (near-)synonymy develops for reasons of accuracy in expression which is linked to the perspective taken by the sender of the message.

The author quotes examples which illustrate that polysemy *(cloning)* and synonymy *(Southern blotting/Southern transfer/Southern hybridisation)* (p. 151) are functional.

Chapter 5 on "The Impact of Metaphorical Models on Categorisation and Naming", actually the pivotal part of Temmerman's book, provides most important insights and substantial data relating to the productive capacity of metaphor in term creation in a particular textual environment and the specialist's understanding. As known from semasiology and semantics of the 1960s (S. Ullmann, M. Halle), metaphors have a prominent function in reflecting the physical and spiritual world by the human mind; they are a panchronic linguistic process, operate at all times in all languages and cultures, and are a universal semantic feature. Temmerman gives a brief overview of the theories of metaphors since the 1980s, with emphasis on G. Lakoff and M. Johnson (1980), and then treats the attitude of traditional Terminology towards metaphor, which, on the whole, is not encouraging in the light of term formation which follows the cognitive principle of analogy. The author, however, applies Lakoff's "Metaphoric Idealised Cognitive Model" (m-ICM) to a number of prominent genetic terms. These include metaphorical namings for information like *GENETIC MATERIAL (DNA) IS A LANGUAGE; THE TOTALITY OF THE GENETIC MATERIAL (THE GENOME) OF AN ORGANISM IS AN ATLAS OF MAPS; GENETIC MATERIAL (DNA) IS THE SOFTWARE OF THE CELL; GENETIC MATERIAL IS A FILM-TAPE* (p. 165f.). These sub-domains of the Idealised Cognitive Model are elaborated individually and substantiated by relevant text quotations which even yield more metaphorical expressions. These share semantic similarities in a particular cognitive field, e.g. *the messenger RNA … carries the message telling that … deciphering the DNA code … written in 'words' of three letters* (p. 186), *'codons' … that code for amino acid* (p. 189). Moreover, metaphorical meanings in the language of genetics have been attached to the (linguistic) terms *transcription, translation, duplication/duplicate; proofreading mechanism* (pp. 190-192). Other metaphors have been drawn from the vocabulary of geography: *a detailed map of human DNA; genetic linkage maps; genetic distances; contig maps/contigs* (i.e. "a set of contiguous overlapping cloned fragments that have been positioned relative to one another", p. 198); *gene hunters,* etc. A typical metaphorical sentence reads: "Like any explorer, *gene hunters* survey as they go, compiling *'maps'* of chromosomes on which they record easily identifiable *landmarks* and the locations of specific genes" (p. 199). (This source may be a textbook or a systematic introducation to Genetic Analysis.)

Temmerman aptly distinguishes between "creative and didactic metaphor" and draws parallels with their use in researchers' articles where "neolexicalisations are the result of conscious or subconscious analogical thinking", specialist manuals which are aimed at users who are not completely lay persons, but have a certain scientific background, and finally, popularising texts intended for a non-specialist readership of interested lay persons. Thus, the preference of certain metaphors is also influenced by the text type and the level

of specialism in discourse. This most diversified chapter concludes with a brief history of "Technological factors (which) influence the development of the life sciences" (p. 214ff.), such as "Computation and the Genome Project" and the "Sequencing technique". The author considers possibilities of metaphorical models to be applied in terminography.

Chapter 6, "Towards New Ways of Terminology Description", in fact draws general conclusions from the selected corpus analysis provided by the previous chapter.

As an appendix, the comprehensive "Bibliography" comprises a section on "Dictionaries and Encyclopedias", another one on "References in the Field of Biotechnology" and an independent part on "Theoretical References" to linguistics. The book concludes with a combined subject and name index.

The monograph is logically structured in the elaboration of arguments about the previous state of the art in Terminology and the author's alternative procedure in the following chapters. Temmerman is closely familiar with the principles of academic writing as recommended by American editorial boards of learned journals for anglophone publications by non-native international contributors. As she is fully aware of the writer's responsibility for the text, she consistently uses advance organisers in each chapter or subchapter, and also intermediate summaries. Special mention deserve the numerous figures and tables which provide a well-balanced synopsis of theoretical arguments, semantic features of terms or of concepts under discussion, or of facts in a particular field of the life sciences. This kind of condensed information in a clear and convincing layout serves as welcome signposts for the reader, and the tables enhance the book's intelligibility and readability.

Another feature of Temmerman's way of academic writing is her constant repetitions of key arguments. There are many cross-references between individual chapters to support thematic coherence, and helpful explanations of previously introduced abbreviations, which are resumed in later chapters and explained in parentheses. It is clearly for this didactic purpose that the author has incorporated elements of "positive" (favourable, supportive) redundancy, a textual and stylistic approach which is fully justified. Moreover, every chapter is headed by a motto which consists of one or more quotations from a literary or an academic writer and has a more or less direct bearing on the content of the following text. As analysts of academic writing (such as John Swales and Tony Dudley-Evans) have shown, references to literary texts are not uncommon in specialist texts on subjects of science and technology, especially for the purpose of didactisation or popularisation. And here again, the principle of analogy plays an important part.

Academic writing is also known for making use of ready-made Latin expressions which may be terms, clichés or stereotyped phrases. *Pars pro toto* is definitely a linguistic term and designates the semantic (and cognitive) relation "the part for the whole". On the other hand, it names the well-known figure of speech, *synecdoche*. The reverse semantic relation is also possible; but by no

means is it designated *toto pro pars* as Temmerman wrongly says (p. 145). In Latin, as a highly inflectional language, the correct formulation can only be *totum pro parte.*

In conclusion, one wonders why the author in her criticism of traditional Terminology has not mentioned the unstable status of nomenclatures and the total absence of phraseology. Both lexical inventories are integrated parts of specialist vocabularies. Items of nomenclature in the Viennese branch of Terminology only count as a special case of terms; they designate univocal items in a scientific classification or taxonomy. Temmerman refers to nomenclature only in a footnote on p. 127 relating to Juan C. Sager (1990).

On the other hand, phraseological units as terms do not play any part in the trend-setting Viennese Terminology. But they are a key issue for the Danish terminologist Heribert Picht (cf. his publications since 1989 and 1996).

Another moot point in Terminology and its standardisation activities, besides the disapproval of metaphors as terms, are the recommendations to avoid proper names as term constituents. The argument is that proper names do not express intrinsic features which are a clue to the meaning of a term, but rather have relational features (by referring to an inventor or discoverer). The examples of *Southern blotting, Southern transfer* and *Southern hybridisation* in genetics and even the extensions by 'wrong' name analogy, *Northern blotting, Western blotting, South-western blotting, North-western blotting,* quoted by Temmerman (p. 82, 151) indicate that proper names in term formation or the creation of units of understanding have a considerable explanatory power, last but not least for the history of such a designation.

To sum up, this new approach to terminology description offered by the author breaks new ground and is a thought-provoking alternative in domains of the social and human sciences where terms are evasive to any clear-cut notional systems of hyperonyms and hyponyms.

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